

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

LG.PHILIPS LCD CO., LTD.,

Plaintiff/Counterclaim Defendant,

v.

TATUNG COMPANY;  
TATUNG COMPANY OF AMERICA, INC.;  
CHUNGHWA PICTURE TUBES, LTD.;  
AND VIEWSONIC CORPORATION,

Defendants/Counterclaim Plaintiffs.

Civil Action No. 05-292 (JJF)

**PLAINTIFF'S MEMORANDUM IN SUPPORT OF  
ITS PROPOSED CLAIM CONSTRUCTIONS**

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**MEMORANDUM IN SUPPORT OF  
PLAINTIFF'S PROPOSED CLAIM CONSTRUCTIONS**

Plaintiff LG.Philips LCD Co., Ltd. ("LPL") submits this brief in support of its constructions of disputed claim terms of LPL's U.S. Patent No. 5,019,002 ("the '002 Patent," Ex. A) and U.S. Patent No. 6,738,121 ("the '121 Patent," Ex. B) at issue in this litigation.

**I. NATURE AND STAGE OF THE PROCEEDING**

On May 13, 2005, LPL filed its Complaint for Patent Infringement against Defendants Tatung Co. ("Tatung"), Tatung Company of America, Inc. ("Tatung America"), Chunghwa Picture Tubes, Ltd. ("CPT"), and ViewSonic Corporation ("ViewSonic") (collectively, the "Defendants") alleging infringement of both the '002 Patent and the '121 Patent (collectively, the "Patents-in-Suit"). On September 2, 2005, Defendants filed their Answers and Counterclaims, alleging invalidity and non-infringement of the Patents-in-Suit. The matter is set for trial beginning on July 17, 2006.

LPL and Defendant CPT (a subsidiary of Tatung) are in the business of manufacturing and selling liquid crystal displays ("LCDs"), which are used in popular flat-screen products such as televisions and computer monitors. Defendants Tatung, Tatung America, and ViewSonic manufacture and/or sell products containing LCDs, including LCDs manufactured by CPT. Briefly, the '002 Patent relates to methods for preventing damage to LCDs due to electrostatic discharge, which occurs during the manufacture of LCDs. The '121 Patent also relates to LCDs with tape carrier packages, which are structures for mounting integrated circuits on LCDs.

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During the exchange of claim terms and meet and confer process prior to this brief, LPL set forth nine (9) terms for construction, while Defendants initially set forth thirty-eight (38) terms for construction, but subsequently withdrew eleven (11) of those terms. The parties discussed their proffered terms and definitions, leading Defendants to withdraw one (1)

additional term. Defendants' approach has necessitated the parties' briefing of the remaining disputed twenty-six (26) terms.

The disputed claim terms in the Patents-in-Suit should be construed in accordance with either: (1) their ordinary meanings, as a "heavy presumption" exists that claims terms be given their ordinary and customary meaning; or (2) definitions compelled by a review of the intrinsic evidence, where applicable. Further, it is LPL's position that nearly all of the terms set forth below do not require any further construction, because their meanings are clear to one of ordinary skill in the art. Nevertheless, because Defendants have requested their legal construction, LPL briefs them herein.

## **II. STATEMENT OF THE FACTS**

### **A. The Technology at Issue**

A brief overview of the LCD structure, in general, and the manufacturing method of thin-film-transistor liquid crystal displays ("TFT-LCDs"), in particular, is necessary to provide the proper context for the claim constructions discussed below.

The use of flat screens for computer monitors and televisions is relatively new. Traditionally, computer monitors have used cathode ray tubes ("CRT") to create images for viewing. A CRT uses a tube that is large and heavy compared to a flat screen, which is thin and light. As a result, the use of flat screens for computer monitors and other products has become very popular with consumers.

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TFT-LCDs are a type of flat panel display used to generate images in many popular flat screen products. A typical LCD panel includes upper and lower polarizers, upper and lower glass substrates (*i.e.*, a front plane and a back plane) equipped with circuit elements, and liquid crystal between the glass substrates. Images on a screen are then created by electronically controlling the amount of light allowed through the LCD panels. The typical light source is

either a backlight unit or reflected ambient light. How much light is allowed through the LCD panels depends on the orientation of the crystal molecules in the liquid crystal as controlled by electrical signals.

The electrical signals control the orientation of the crystal molecules in the liquid crystal by creating an electric field between the upper and lower glass substrates. To create the electric field, a voltage is applied to what are known as pixel electrodes. As each pixel electrode corresponds to a pixel or dot on the screen, it is possible to control the emission of light through the LCD panels for each pixel or dot on the screen by controlling the electrical signals sent to the various pixel electrodes.

The pixel electrodes are part of the circuit elements that are in LCD panels. Circuit elements are generally manufactured by depositing layers of conductive material and then patterning such layers by a photolithography process. The circuit elements create a matrix of rows and columns of circuit control lines, with a pixel contact connected to a pixel electrode, and a control element between the control line rows and columns. During manufacture, these rows and columns can also provide a conductive pathway for damaging electrostatic discharge, otherwise known as "ESD."

The matrix arrangement allows controlling the electrical signals to the various pixel electrodes. Each row and column is equipped with a contact pad through which electrical signals are sent. Generally, one driving circuit is used for each row or column control line. In this way, an electrical signal can be fed to an entire row containing a large number of pixels. Then another electrical signal can be supplied selectively to particular columns to cause selected pixels to light up or change optical properties.

So-called active-matrix displays employ thin film transistors (TFTs), or tiny switching transistors and capacitors arranged in the matrix on a glass substrate. A TFT is generally associated with each particular pixel. This arrangement is beneficial because the capacitor is able to hold the charge until the next refresh cycle. Accordingly, by carefully controlling the amount of voltage supplied to a pixel, the orientation of the liquid crystal molecules can be manipulated just enough to allow some light through. By doing this in very exact, very small increments, LCDs can create a gray scale. Most displays today offer at least 256 levels of brightness per pixel.

The electrical signals are fed to the rows and columns by driving integrated circuits (D-ICs). In order to create the desired images on the screen, it is necessary to have D-ICs that can feed the appropriate signals to the various rows and columns of the active matrix display, thereby activating the correct pixels in accordance to the signals from the printed circuit board (PCB). These D-ICs are generally located between the PCB and the LCD panels.

This case concerns LPL's significant innovations relating to: (1) improving how D-ICs are mounted on the liquid crystal panel of an LCD (the '121 Patent); and (2) methods for providing protection against electrostatic discharge during the manufacture of active matrix displays (the '002 Patent).

## **B. The Patents-in-Suit**

### **1. The '002 Patent**

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The '002 Patent, entitled "Method of Manufacturing Flat Panel Backplanes Including Electrostatic Discharge Prevention and Displays Made Thereby," was filed on July 12, 1988, and names Scott H. Holmberg as the inventor. The '002 Patent issued on May 28, 1991.

The '002 Patent relates to methods to protect the circuit elements from damage caused by electrostatic discharge that is accidentally fed into the active matrix. During the manufacture of

the device, electrostatic discharge can occur when a high static electric potential is coupled across at least one pair of row and column lines. Electrostatic discharge is undesirable because it generally causes a short, and thus a burn out of the pixel, thereby rendering the pixels defective, resulting in black dots on the screen. When this occurs, the LCD panel manufacturer may be unable to use the entire back plane of the active matrix display. The high occurrence of unusable product in turn causes the manufacturer to suffer a radically increased manufacturing cost.

To protect the device from electrostatic discharge during manufacture, the '002 Patent discloses a process that employs electrostatic discharge guard rings around the active elements of the display. To protect the matrix from electrostatic discharge, the manufacturing process of the '002 Patent employs an outer electrostatic discharge guard ring, which is connected to the rows and columns. The rows and columns are also connected together with jumpers. Furthermore, because the outer electrostatic discharge guard ring is not necessary after manufacturing, the outer electrostatic discharge guard ring is positioned outside of the active matrix display. In this manner, after manufacture is completed, the outer electrostatic discharge guard ring can be easily removed. The '002 Patent also discloses an inner electrostatic discharge guard ring located inside the outer electrostatic discharge guard ring to also serve to protect against electrostatic discharge.

Upon examination of the application, the Examiner rejected claims 1-6, 8-17, 19-24, and 26-35 under 35 U.S.C. § 103 as being obvious over the combined teachings of U.S. Patent Nos. 4,803,536, 4,455,739, 4,586,242, and 4,736,271. The remaining claims were indicated as containing allowable subject matter. Ex. F, Office Action, mailed March 31, 1989, at p. 3.

In response to the Office Action, no amendments were made to the claims to overcome the prior art rejection. Instead, Applicants distinguished claims 1 and 19 over the cited prior art

stating that the prior art did not teach removable resistive stripes as required by these claims. Furthermore, with respect to claims 10 and 28, Applicants argued that the cited prior art also did not teach or suggest inner guard rings as claimed. Ex. G, Proposed Response, filed July 2, 1990, at p 2. In light of these remarks, the claims were allowed. Ex. H, Notice of Allowance, mailed December 7, 1990.

## **2. The '121 Patent**

The '121 Patent, entitled "Tape Carrier Package with Dummy Bending Part and Liquid Crystal Display Employing the Same," was filed on March 23, 2001, and names Sai Chang Yun and Eun Yeong An as the inventors. The '121 Patent issued on May 18, 2004 and claims foreign priority to a Korean Patent Application filed on March 31, 2000.

Generally, a tape carrier package (TCP) is used as the mounting method for the D-ICs. The PCB is folded to the rear side of an LCD panel by bending the TCP, mounted with a driving integrated circuit and connected between the back plane (lower glass substrate) and the PCB. To allow for the TCP to bend, a portion of its base film is removed. The TCP is equipped with leads that connect the D-ICs to the PCB, to receive the signals from the PCB, and to the contact pads of the rows and columns in the active matrix, to deliver the output signals.

During the manufacture of LCD panels, it is important to be able to form and connect all components without damage. One problem that often arises during the connection of the D-ICs is warping of the glass substrate caused by the high heat and pressure in the manufacturing process. Specifically, the thermal expansion forces and the thermal contraction forces generated at the time of thermal-pressing the TCP to the liquid crystal panel result in warping of the back plane. Such warping of the glass substrate is undesirable because it causes a brightness variation on the screen.

Using LPL's patented technology, the tape carrier package is mounted on the liquid crystal panel in such a way that does not cause a brightness variation in the LCD. The TCP of the '121 patent has at least one bending part, which is a bendable part of the TCP where base film has been removed to enable the tape carrier package to bend. The TCP of the '121 Patent also has at least one dummy bending part, which is a part of the TCP where base film has been removed, and has a function other than bending. The dummy bending part functions, *inter alia*, to distribute stress caused by thermal expansion applied to the liquid crystal panel when the tape carrier package is bonded to the liquid crystal panel with high heat and pressure. In doing so, it is possible to prevent stress-induced deformation of the back plane of the liquid crystal panel, thereby preventing the occurrence of brightness differences on the LCD screen.

After a first examination of the patent application that ultimately matured into the '121 Patent, claims 1, 4-7, 9-12, and 14 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,398,128. Ex. C, Office Action, mailed March 24, 2003, at p. 2. Applicants distinguished over this prior art on the basis that it did not teach or suggest "wherein the dummy bending part is formed at a position, close to any one of the output pad part or the input pad part, where the tape carrier package is not folded," and amended all rejected claims to include this limitation. Ex. D, Amendment, filed July 22, 2003, at p. 11. The rejected claims were subsequently allowed. Ex. E, Notice of Allowance, mailed November 21, 2003.

### **III. SUMMARY OF THE ARGUMENT**

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#### **A. Terms or Phrases of the '002 Patent That Should be Construed**

1. The terms "interconnecting," "resistance," and "shunt switching element" should be construed in accordance with their ordinary meanings.

2. The terms “pick up pad;” “outer electrostatic discharge guard ring;” and “inner electrostatic discharge guard ring” should be construed in accordance with definitions compelled by a review of the intrinsic evidence.

**B. Terms or Phrases of the ‘002 Patent That Should Not be Construed**

The following terms or phrases of the ‘002 Patent, proposed by Defendants, should not be construed because their meanings are clear to one of ordinary skill in the art: “interconnecting substantially all of said row lines to one another and substantially all of said column lines to one another;” “electrostatic discharges;” “coupled to said interconnected row and column lines via a resistance;” “removing said outer guard ring and row and column interconnections;” “corner pad;” “scribe line;” and “aligning scribe lines with said corner pad for removing said outer guard ring and row and column intersections.”

**C. Terms or Phrases of the ‘121 Patent That Should be Construed**

1. The term “bending part” and the phrase “pad part extending from the integrated circuit chip” should be construed in accordance with their ordinary meanings.

2. The term “dummy bending part” and the phrases “reducing a thermal expansion force and a thermal contraction force;” and “distributing a stress applied to the liquid crystal panel according to a thermal expansion of the pad part” should be construed in accordance with definitions compelled by a review of the intrinsic evidence.

**D. Terms or Phrases of the ‘121 Patent That Should Not be Construed**

The following terms or phrases of the ‘121 Patent, proposed by Defendants, should not be construed because their meanings are clear to one of ordinary skill in the art: “tape carrier package;” “output pad part;” “bent position;” “input pad part;” “not folded;” “thereby reducing a thermal expansion force and a thermal contraction force of the base film parallel to a longitudinal direction of the integrated circuit chip;” and “on the pad part.”

#### IV. ARGUMENT

##### A. The Analytical Framework for Claim Construction.

In determining patent infringement, the court must first construe the scope of the patent claim as a matter of law before the fact-finder addresses the question of infringement. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). Proper claim construction entails an analysis of a patent's intrinsic evidence -- *i.e.*, the claim language, the written description, and the file history. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1581-83 (Fed. Cir. 1996). The appropriate starting point, however, is necessarily with the language of the asserted claim itself. *Invitrogen Corp. v. Clonetech Labs, Inc.*, 429 F.3d 1052, 1076 (Fed. Cir. 2005). As the Federal Circuit recently confirmed, en banc, "[i]t is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (citation omitted); *see also Markman*, 52 F.3d at 980 ("The written description part of the specification itself does not delimit the right to exclude. That is the function and purpose of the claims.").

Nevertheless, it is not proper to "construe" a patent claim by changing its plain and ordinary meaning. To the contrary, construction of a claim starts with its plain language and, in the absence of some compelling reason not to, courts "must presume that the terms in the claim[s] mean what they say, and . . . give full effect to the ordinary and accustomed meaning of claim terms." *Johnson Worldwide Assoc, Inc. v. Zebco Corp.*, 175 F.3d 985, 989 (Fed. Cir. 1999). "The ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, *i.e.*, as of the effective filing date of the patent application." *See Phillips*, 415 F.3d at 1313; *see also Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir.

2004) (“A court construing a patent claim seeks to accord a claim the meaning it would have to a person of ordinary skill in the art at the time of the invention.”).

Courts also should not define terms that are already in simple terminology, and indeed the Federal Circuit has “question[ed] the need to consult a dictionary to determine the meaning of . . . well-known terms.” *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 863 (Fed. Cir. 2004); *Biotec Biologische Naturverpackungen GmbH & Co. KG v. Biocorp, Inc.*, 249 F.3d 1341, 1349 (Fed. Cir. 2001) (finding that trial court did not err when it declined to construe “melting” when the meaning did not depart from its ordinary meaning or otherwise require construction); *see also STMicroelectronics, Inc. v. Motorola, Inc.*, 327 F. Supp. 2d 687, 698 (E.D. Tex. 2004) (“Although the [disputed] term is perhaps not simple, the individual words in the term have agreed or common meanings that are not in need of further construction.”). Further, “merely rephrasing or paraphrasing the plain language of a claim by substituting synonyms does not represent genuine claim construction.” *C.R. Bard*, 388 F.3d at 863.

Additionally, claims “must be read in view of the specification, of which they are part.” *Phillips*, 415 F.3d at 1315 (quoting *Markman*, 52 F.3d at 979). A court also looks to the specification to see whether the patentee expressly defined any of the claim terms. *See Vitronics Corp.*, 90 F.3d at 1582. “In such cases, the inventor’s lexicography governs.” *Phillips*, 415 F.3d at 1316 (quoting *CCS Fitness, Inc., v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)). Alternatively, the specification “when read as a whole [may] suggest[] that the very character of the invention requires” limiting the ordinary meaning of a claim term. *Alloc, Inc. v. I.T.C.*, 342 F.3d 1361, 1370 (Fed. Cir. 2003); *see also Bell Atlantic Network Servs., Inc. v. Covad Communications Group*, 262 F.3d 1258, 1271 (Fed. Cir. 2001) (finding that “when a patentee uses a claim term throughout the entire patent specification, in a manner consistent with only a

single meaning, he has defined that term ‘by implication’”). Nevertheless, in *Phillips*, the Federal Circuit reiterated the well-known claim construction canon that, although claims are read in light of the specification, it is improper to import limitations from the specification into the claims. *Phillips*, 415 F.3d at 1323; *see also E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1434 (Fed. Cir. 1988) (holding that the district court was wrong as a matter of law in reading extraneous limitations from the specification into the claims at issue). To emphasize this point, the court stated that “[t]o avoid importing limitations from the specification into the claims, it is important to keep in mind that the purposes of the specification are to teach and enable those of skill in the art to make and use the invention and to provide a best mode for doing so.” *Phillips*, 415 F.3d at 1323.

Interpretation of patent claims will also rely upon drawings in the patents. Drawings in a specification may be used in a manner similar to the written specification to provide evidence that is highly relevant to claim interpretation. *CVI/Beta Ventures, Inc. v. Tura LP*, 112 F.3d 1146, 1153 (Fed. Cir. 1997); *Autogiro Co. of America v. United States*, 384 F.2d 391, 398 (Cl. Ct. 1967) (noting that drawings may be used in the same manner and with the same limitations as the specification). Notably, the patent statute requires drawings “where necessary for the understanding of the subject matter [of the invention] sought to be patented.” 35 U.S.C. § 113.

In addition to the specification, a court may also consider a patent’s prosecution history. *Phillips*, 415 F.3d at 1317. Because the prosecution history is a record of the proceedings before the PTO, it “provides evidence of how the PTO and the inventor understood the patent.” *Id.* (citing *Lemelson v. Gen. Mills, Inc.*, 968 F.2d 1202, 1206 (Fed. Cir. 1992)). The prosecution history, however, “often lacks the clarity of the specification and thus is less useful for claim construction purposes.” *Phillips*, 415 F.3d at 1317.

**B. Extrinsic Evidence Is Disfavored Except under Limited Conditions.**

Claims are typically interpreted solely in view of publicly available sources (*i.e.*, the intrinsic evidence), and consideration of extrinsic evidence during claim construction is generally disfavored. *Vitronics*, 90 F.3d at 1583. Indeed, the *Phillips* court cautioned that extrinsic evidence is “less significant than the intrinsic record in determining the legally operative meaning of claim language” and may not be “used to contradict claim meaning that is unambiguous in light of the intrinsic evidence.” *Phillips*, 415 F.3d at 1317, 1324 (internal quotation omitted); *see also Pfizer Inc. v. Ranbaxy Labs. Ltd.*, 405 F. Supp. 2d 495, 502 (D. Del. 2005) (noting that “extrinsic evidence is considered less reliable and less useful in claim construction than the patent and its prosecution history.” (citing *Phillips*, 415 F.3d at 1318-19)). Accordingly, “[i]n those cases where the public record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper.” *Vitronics*, 90 F.3d at 1583; *see also Phillips*, 415 F.3d at 1324 (reaffirming approach to claim construction outlined in *Vitronics*).

**C. Proper Construction of the Terms and Phrases of the ‘002 Patent in Dispute**

**1. Terms and Phrases of the ‘002 Patent That Should Be Construed**

**a. “interconnecting” (Claims 1 and 12)**

Although the term “interconnecting” has more than one ordinary meaning, the proper construction of the term is “shorting,” because “interconnecting” was used throughout the entire intrinsic record in a manner consistent with this single meaning. *Bell Atlantic*, 262 F.3d at 1271.

Turning first to the claims, the term “interconnecting” in the context of claims 1 and 12 refers to interconnecting substantially all of the row lines to one another, and substantially all of the column lines to one another. The portion of the specification that corresponds to this claim

language unmistakably supports the construction of “interconnecting” as “shorting.” Indeed, the specification explicitly states the following:

The bus [column] lines 82 and 86 are interconnected (*shorted*) at or before the pad 84 and are interconnected (*shorted*) at the opposite ends by a line or short 88. . . .

The bus [row] lines 90 and 94 are interconnected (*shorted*) at or before the pad 92 and are interconnected (*shorted*) at the opposite ends by a line or short 96.

Ex. A, the ‘002 Patent, at col. 5, l. 65 - col. 6, l. 9 (emphasis added).

Turning next to the prosecution history, nothing in the prosecution history of the ‘002 Patent contradicts the definition of “shorting” as the ordinary meaning of the term “interconnecting.”

Finally, because the publicly available intrinsic record unambiguously defines the scope of the term, any reliance on extrinsic evidence is improper. *See Vitronics Corp.*, 90 F.3d at 1583; *see also Phillips*, 415 F.3d at 1324. For all of these reasons, the term “interconnecting” is properly construed as “shorting” in claims 1 and 12 of the ‘002 Patent.

In contrast, Defendants’ proposed construction of “electrically connecting” is not supported by the intrinsic record, and should be rejected by this Court.

**b. “resistance” (Claims 1, 2, 3, and 12-14)**

The term “resistance” has an ordinary meaning of “any component used to cause a voltage drop during current flow.” As explained below, all of the intrinsic sources of claim construction support this ordinary meaning, and the term should be so construed.

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It is well-known to one of ordinary skill in the art that “resistance” is an intrinsic characteristic of materials and devices. Resistance is a measure of the materials’ or devices’ opposition to the flow of electric current. All circuit components, regardless of whether the component is a resistor, diode, or transistor, have the characteristic of resistance. The intrinsic

evidence is consistent with this universal understanding in the art, and discloses that semiconductor materials, such as those used to form diodes and transistors, have a measurable value of resistance. For example, the specification suggests that one way to overcome damage to gate material of a thin film transistor is to make the gate material very thin, but acknowledges that a transistor with such a thin gate could not be used in large transistor arrays necessary for LCD backplanes because “the resistivity is then too high.” Ex. A, the ‘002 Patent, at col. 4, ll. 32-34.

In contrast, Defendants’ lengthy construction of “resistance” is contrived to narrow the scope of this simple and straightforward claim term. Specifically, Defendants’ construction attempts to improperly equate “resistance” with “resistor.”

“A resistance, as it is used in the claims, means a resistor, which is an electric circuit element that has a specified resistance to the flow of electrical current. A resistance does not include switching elements such as transistors and diodes.

There is no support for Defendants’ position that switching elements, such as transistors and diodes, do not provide a resistance to electrical current; as such, this construction should be rejected.

**c. “pickup pad” (Claims 3, 4, 6, 14, 15, 17 and 35)**

When properly construed, the term “pickup pad” is “a conductive area used to electrically connect the back plane to the front plane.”

The term “pickup pad” is disclosed in the specification for electrically connecting the back plane to the front plane:

A backplane pickup contact pad 216 also is provided, which includes a corner 218 for aligning the backplane with the front plane. The pad 216 includes a shunt line 220 which is connected to one set of source or gate lines via a shunt transistor 222 along the edge to be scribed and removed along the line 206. . . . There will be at least one corner backplane pickup pad 216 and